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GET YOUR MONEY'S WORTH FROM FORESTRY

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Intensive forest management in the South dates from about 1935. Altogether we have made excellent progress, and as a region should be proud of the fact that we have more forest land under real management than any other section of the country. The companies making up the pulpwood industry in the South are to be complimented on having placed a very high percentage of their lands under management and on the effort they have made to sell better cutting practices to small timberland owners.

Although accomplishments have been many, there is still a huge job to be done before all commercial forest land has the fire protection and management so necessary to the well-being of all the people of the South. The Reappraisal of the forest situation made by the U. S. Forest Service in 1945 and 1946 indicated what a large job we have to do in the South before we can begin to realize the possibilities offered us by good land, a long growing season, good species, and favorable markets. The Reappraisal Report indicated that large owners (holding 50,000 acres or more) are, in general, doing a creditable job of managing their timberlands. Sixty-six percent of the cutting on lumber company lands was of fair to high order. Cutting on pulp company holdings was even better: 89 percent of it was of fair to high order.

Those of us who are managing timberland, however, often lose sight of the fact that large ownerships make up only a relatively small percentage of the total forest land in the South. Actually, large ownerships number only 219 and control only 23 million acres of forest land. Contrasted to this, owners of small holdings number

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1,650,000 and control 122 million acres of forest land. At the time of the Reappraisal, 74 percent of the cutting on these small holdings was poor or destructive. Since the pulp industry has dealings with many of these owners, the industry can have a great influence on the type of management practiced. In fact, the industry has a chance to help itself by helping these small owners to realize greater returns through good forest management.

Even though owners of large acreages of forest land have accomplished a great deal in the past 10 years, this is no time for any of us, whether State, Federal, or private, to swell up with pride and assume that everything is known about forest management. Neither have we any right to assume that the management we are practicing is intensive management and that we are getting all the returns per acre that it is possible to get. Actually, we are only getting about half our money's worth from our so-called intensively managed stands. This means that owners of large acreages of forest land as well as owners of small tracts are losing money every day--plenty of it.

I would like to back up this conclusion by describing some of the results that have been obtained during the last 10 years from studies under way on the Crossett Experimental Forest. As most of you know, the Experimental Forest is a part of the Southern Forest Experiment Station. The original unit of the forest was given to the U. S. Forest Service by the Crossett Lumber Company. The experimental work deals with problems of the upland loblolly-shortleaf pine-hardwood type.

Low-Grade Hardwoods a Big Problem

When the area now contained in the Experimental Forest was accepted in 1934, the tract had a fairly good stand of second-growth pine ranging from 4 to 20 inches in diameter and averaging about 3,300 board feet (Doyle scale), or 14 cords per acre.

In addition to the pine, the stand also contained a very large number of low-grade hardwoods of many species. Some of these were of quite large size. Most of them were from about 3 to 10 inches in diameter. Many of them had come in as a result of the opening up of the stands by the heavy cutting of 1915. Others were a result of repeated uncontrolled fires that kept out the pine and favored the hardwood.

In some few places, these low-grade hardwoods occupied only a small portion of the effective pine growing space. In other places, they covered whole areas solidly, leaving little or no chance for pine to become established or for the pine already present to grow.

It has been estimated that on the average these weed trees were occupying or would soon occupy nearly 50 percent of the growing space.

The Crossett Branch has accomplished some quite remarkable things by a hardwood removal program. Today there are dense stands of pine of near-pulpwood size on areas that in 1939 were almost completely taken over by the hardwoods. In these areas, there are at least 3 cords of pulpwood-size pine material per acre at the end of the first 10-year period. Furthermore, these stands are just getting into condition and, if handled correctly, will produce very good incomes for the next 50 to 60 years without an additional girdling operation. Reasonably well-stocked stands of pine will grow 500 board feet or 1 cord or more per acre per year. Did it pay to eliminate the poor-grade hardwoods?

At the present time, pine stumpage west of the Mississippi commonly ranges between $20 and $40 per M board feet, or from $2.00 to $3.50 per standard cord for pulpwood. If a relatively low value of $20 per M for sawlogs, or $2.50 per cord for pulpwood, is used and applied to the annual growth of 500 board feet of saw timber, or to 1 cord of pulpwood, then every year that low-grade hardwoods are allowed to occupy half of the pine stands at Crossett we are losing $5 per acre in saw-timber stands or $1.25 per acre in pulpwood stands. Other timberland owners are likewise losing this potential income. This loss is just about as real as if it were coming out of the owner's pocket because he already has a large investment in land, timber, and carrying charges. Poisoning or girdling the hardwoods cost $1 to $3 per acre at Crossett so the value of the 3 cords of pulpwood grown in the first 10 years following hardwood elimination is worth about three times this cost.

I do not mean to suggest that all hardwoods should be removed from all our timberland. On good hardwood sites, the better hardwoods, such as white oak, yellow poplar, and ash, probably will yield more income than pine. Even on the better pine sites, commercially valuable hardwoods may be very desirable in mixture with pine. Some hardwoods are needed in pine stands to keep up the fertility of the soil. At the same time, low-grade hardwoods should very definitely be kept under control on pine sites because they are causing a huge present and potential loss of income.

Planting Will Pay in Many Cases

There are many, many acres of good pine growing land from which all the pine has been cut, leaving no way for the area to reseed naturally. Thousands of other acres of abandoned farm land in our pine types will require a good many years to reseed naturally. And, finally, there are many thousands of other acres with a very light stocking of small trees that are producing only a small fraction of their potential amount of forest products. Some of these open areas are within shouting distance of some of our pulp mills. Apparently, no effort is being made to plant them. Undoubtedly, it is hoped that such areas will reseed naturally to a full stand. While the owners are waiting for that to happen, they are buying wood from 200 to 300 miles away and paying a freight rate of $3 to $5 per cord.

Timberland owners can, with modern tree planters, plant such areas at a cost of $8 to $12 per acre. Thus the freight that is being paid on 2 to 3 cords of wood hauled these long distances would pay for planting one of these nearby idle acres on which 1 to 2 cords of pulpwood can be grown annually. Again the owners are losing $2 to $4 of potential gross income from stumpage every year that they wait. The only excuse for not developing a dense stand immediately is a plan to go out of business within 15 to 20 years.

High Returns Possible from Well-Spaced, Immature Trees

It is quite common practice for many small sawmills as well as some of the larger ones to obtain their logs by clear-cutting the stands to a very low diameter limit. The same is true for a large percentage of the pulpwood operators in the South. Contractors will buy stands "lump sum" from the owners and then clear-cut them of everything that will make a pulpwood stick with a 3-inch top diameter.

Providing enough seed trees are reserved, such a cutting policy is not bad if the stands in question are even-aged and the trees are mature for the products wanted. There is nothing wrong with even-aged management; it may be the type of management best suited to the production of pulpwood. However, for every example of clear-cutting in mature or near-mature stands, there are 100 examples of the clear-cutting of all-aged and wholly immature even-aged stands that have just developed to the point where they will yield good annual returns to the owner for a long period of time if properly managed.

I realize that the owners of the stands in question often wish to have their woods clear-cut and think they are making a smart deal. In many other cases, the contractors will only buy on a clear-cutting deal or at least talk the owners into such a proposition.

But just how good a deal is such a cutting policy in immature stands? Well-spaced pine trees in the South will usually increase in diameter at an average rate of 1 inch in 3 years or 3-1/3 inches in 10 years. Four-inch trees will increase 114 percent in volume and value as pulpwood in growing to 5 inches in size.

This means that these 4-inch trees are earning interest on the investment of 38 percent per year! Similarly, 5-inch trees growing 1 inch in diameter in 3 years are increasing in value at a rate of 27 percent per year. Under the same conditions of growth and again assuming the trees are to be sold for pulpwood, 6-inch trees will increase in value at 23 percent per year; 8-inch trees will make 12 percent per year; 10-inch trees will make 9 percent a year, and 12-inch trees will make 7 percent a year.

If we are considering the production of saw timber, and we assume that good, well-spaced trees will grow 1 inch in diameter in 3 years, a 9-inch tree will increase 46 percent per year in volume and value in growing to 10 inches. Ten-inch trees will increase at the rate of 30 percent per year; 14-inch trees will increase annually at the rate of 13 percent; and 16-inch trees will increase 10 percent a year.

Now--do you know of any reasonably safe investment you can make with the money obtained from trees of these sizes that will yield a return from 10 to 40 percent per year? If so, an owner is justified in clear-cutting good, fast-growing, immature trees of the sizes indicated. If not--and "not" is the usual answer--then these trees should be allowed to grow until they are financially mature or until they slow up in growth and earn a relatively low rate of interest.

There is every reason for thinning immature stands in order to remove the suppressed, diseased, and limby trees, and to give the good trees room to grow. Such a thinning is usually necessary every few years. But harvesting the good trees before they are 10 to 12 inches in diameter on a pulpwood operation and from 18 to 24 inches for a sawlog operation is distinctly poor business from the landowner's standpoint.

Crossett Farm Forestry Forty Shows Timber-Growing Possibilities

The Crossett farm forestry study should interest all timberland owners because it indicates the growth, yield, and returns that can be expected from a large share of our forest land in the South once the stocking is built up to a reasonable level. In 1937 forty acres of second-growth shortleaf-loblolly pine were selected for management as a farm woodlot. It was planned to make an annual harvest of forest products from the area to see if timber could not be as much an annual farm crop as corn, cotton, or potatoes.

The volume of growing stock and the total amount of growth produced during the first year of management were first determined by a 100-percent inventory and a growth study. Next, a number of the larger and less valuable trees, having a volume equivalent to the growth during the year, were marked for cutting. These marked trees were then cut into the products for which they were best suited. Parts of some trees made logs, other parts yielded pulpwood and posts, and the low-grade, rough hardwood tops were made into firewood.

Ten such annual cuts have been made from the 40-acre tract to date. Yet, today the volume of the stand is almost identical to that present when the study was started in 1937. Moreover, since most of the low-quality trees were removed in the first years of the study, the quality of the stand is much better than when the study started. These 10 annual cuts have produced 122,197 board feet (Doyle rule) of logs, 281 cords of pulpwood, 171 cords of fuelwood, and 313 fence posts. These products had a value of $1,741 in the standing tree and a market value of $5,995. These figures represent a stumpage return of $43.53 per acre and a market value of $149.87 per acre for the 10-year period.

The results of this study indicate that timber properly managed will yield large returns and is or can be as much an annual crop as corn or cotton. Furthermore, since approximately 1,000 pounds of cellulose can be obtained from 1 standard cord of wood, the 40-acre farm woodlot is producing yearly approximately 27,900 pounds of cellulose. This is equal to 700 pounds per acre. It forcibly demonstrates that well-stocked stands of trees can produce more cellulose than cotton does on much of the hill land. Cotton often yields less than 300 pounds of cellulose per acre.

Although this is called a farm woodland study, the results can apply equally well to timberland in other classes of ownership. You may not harvest a crop from each acre of your forest land each year, but you could get about the same results if you made a harvest every 5 years.

In times past, it has been common practice to say that if a given piece of land was not valuable for agriculture, or grazing, or recreation, or something else, it could and should be called "forest" land and trees grown on it. In other words, the forest was supposed to contain any old piece of land that no one else wanted. I believe that the Farm Forestry Forty has proven that, on a very large percentage of our uplands throughout the South, timber does not need to take a back seat to any crop.

Summary

Summing up, just remember that your expenses of management per acre per year are generally the same regardless of the amount of wood produced. The wood you will get per acre per year depends upon the amount of growing stock of desirable species you have and how you handle it. At the present time, most of the stands are badly understocked. They are too thick in some spots and far too thin in others. They contain wolf trees and slow-growing trees and much low-grade hardwood that is cutting down the growth of good trees by nearly one-half. A large amount of open and non-restocking forest land close to the mills needs to be planted. At the same time, the mills are paying a freight charge of $3 to $5 per cord on wood from 200 to 300 miles away. In general, owners of timberland are not getting anywhere near their money's worth from their stands. If you are not, and you intend to be in business for some time to come, you had better take advantage of your opportunities. You can't afford not to.